

between Srivilliputtur forests, Chinnar Wildlife Sanctuary and Muttatti area may throw more light on the distribution and abundance of *R. macroura*. Such surveys may also help in identifying potential

habitats for protection.

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2. ESTIMATION OF DENSITY OF IBEX *CAPRA IBEX* LINN. IN PIN VALLEY NATIONAL PARK, HIMACHAL PRADESH

(With a text-figure)

The Pin Valley National Park in Lahaul-Spiti district, Himachal Pradesh, was set up in 1987. Biogeographically, this area has been included in Zone 1B, i.e. the Tibetan Plateau (Rodgers and Panwar 1989). The mean elevation of the Park is 4250 m above sea level (Morgain 1975). There is virtually no information on the status of wildlife of this difficult terrain. The local Buddhist population does not shoot wild animals because of religious sentiment. The ibex *Capra ibex sibirica* is a major species in the Park. No density estimates exist for Himalayan ibex in its entire range.

In order to assess the status of wildlife in the Park, preliminary surveys were done during 1988-89. The surveys showed that ibex move downwards into the valleys after snowfall in late October or early November. By late October, the migratory graziers who come largely with sheep also leave the Park. Therefore, November was selected as being the best period for a census of ibex.

The Park was divided into seven census grids along the seven major rivulets (Fig. 1). Seven parties, each consisting of one observer (Wildlife Department personnel) and two labourers were allotted one census grid (or transect line). The length of the transects varied between 6 and 11 km and the breadth between 1 and 1.5 km. 500-750 m were scanned on either side of each transect, using 10 x 55 binoculars.

Practise censuses were carried out from 22 to 25 October 1989, and the actual census from 12 to 14 November 1989.

RESULTS AND CONCLUSION

The observations made during the census are

shown in table 1.

TABLE 1

Name of the transect line (see Fig. 1)	Area covered (sq. km.)	Total No. of Ibex seen
(1) Kidul Cho up to Ula	11 x 1 = 11	7
(2) (i) Kidul Cho to Thango	6 x 1.5 = 9	46
(ii) Thango to Nakpozamba	6 x 1 = 6	Nil
(3) Thango to Debsa	7 x 1 = 7	46
(4) Khaminger to Kangla	8 x 1.5 = 12	33
(5) Larang pasture to Larang La and Tari Khango	10 x 1 = 10	21
(6) Chhochhden to Thangpat	11 x 1 = 11	21
(7) Chhochhden to Pradey-Chorak-Nimish Khango	10 x 1 = 10	Nil
Total =	76 sq. km	174

$$\text{Density of Ibex} = \frac{174}{76} = 2.29 \text{ (Ibex per sq. km)}$$

The average breadth of the valleys scanned (1 or 1.5 km) as mentioned above is a fact, visual estimation by the observers.

The results given above are purely based on actual observations and do not include any allowance for the unseen number of ibex in the survey area.

There was little chance of overlapping or double counting of ibex as the seven census grids were away from each other. At the time of compilation of data, the timing and sites of ibex sightings were taken into account to avoid double counting.

The area surveyed during census (76 sq. km) is 11.26% of the total area (675 sq. km) of the Pin

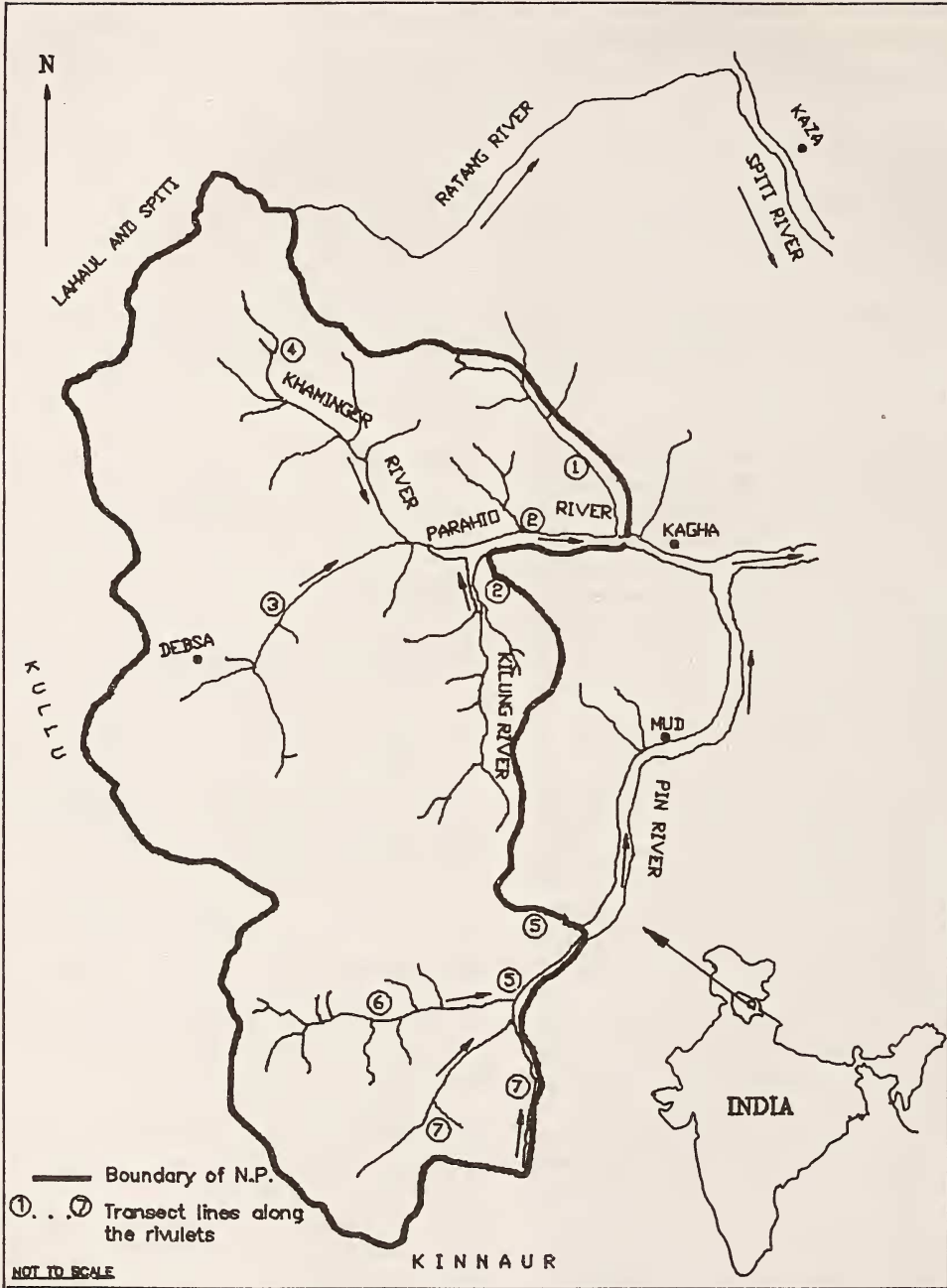


Fig. 1. Map of Pin Valley National Park, showing transect lines along the rivulets.

Valley National Park. A major portion of the Park is covered by glaciers, etc. which may not be considered as ibex habitat. The total population of ibex in the Park could be between 700 and 1200 animals.

Recommendations: This population estimation exercise must be used as benchmark data by future Wildlife managers. The influence of grazing by migratory sheep and goats should be investigated further. A management prescription has been proposed that involves a grazing closure programme that will lead to total elimination of grazing in all the major pastures inside the National Park (Pandey 1990). It is recommended that these results be verified in similar

weather conditions in November over a period of at least five years so that direct comparison can be made between counts associated with the grazing reduction.

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3. ON RARE CETACEAN SPECIES OFF SRI LANKA, INCLUDING THE KILLER WHALE *ORCINUS ORCA* (LINN.) (DELPHINIDAE : CETACEA)

An impetus to the study of Cetaceans off Sri Lanka was given by the declaration in 1979 of the northern portion of the Indian Ocean (20° 130' E, and above 55° S) as a marine mammal sanctuary at a meeting of the International Whaling Commission (IWC). This was followed by a three-year study (1982-1984) of the large whales, specially of the sperm whale *Physeter macrocephalus* (Linnaeus) off Sri Lanka (see Alling *et al.* 1982). In addition, observations were made on small cetaceans. Alling (1985) examined the fishery by-catch at the fishery harbours of Beruwala (south coast) and Valaichenai and Trincomalee (east coast).

The Marine Mammal Programme of the National Aquatic Resources Agency (NARA) continued the study of the fishery by-catch and also recorded sightings of both large and small cetaceans during off-shore cruises of 'R/v Samudra Maru' during the period 1985-1989.

During the period 1985-1989 we examined the landed catch at fishery harbours Negombo (on the west coast), Beruwala, Galle, Mirissa, Dondra, Kottogoda, Tangalle, Hambantota, Kalametiya and Kirinda (on the south coast). The number of monitoring days of the by-catch during the above period was 46 for Negombo, 44 for Beruwala, 28 for Galle, 52 for

Mirissa, 47 for Dondra, Ganadara and Kottogoda and 8 for Tangalle, Hambantota, Kalametiya and Kirinda. During this study the following rare/infrequent species were recorded in the catch:

Killer whale *Orcinus orca* (Linn.): On 8 April 1986 a female was landed at Negombo by fishermen operating a 3.50 ton fishing vessel 50 km off Negombo. It was entrapped in the nylon gillnet and measured 277.5 cm from tip of snout to fluke notch. Its tooth count was 18 for each jaw. It had the striking black and white pigmentation typical of the species. Its body was cut up to be sold while the skull was procured and given by NARA to the University of Peradeniya.

Rough-toothed dolphin *Steno bredanensis* (Lesson): Five specimens, of which:

(i) Two specimens, a male and a female at Negombo fishery harbour. The male was net-entangled in May 1987 and measured 177.5 cm. The female was harpooned in February 1988, and measured 152.5 cm.

(ii) A single animal, a male was landed at Beruwala fishery harbour in February 1988. It was net-entangled and measured 223.75 cm in total length.

(iii) Two animals, a male and a female, were